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(54) Package of oral care implements and method of using the same

(57) A package (300, 600, 700, 900) of oral care implements comprising a tubular body (301, 601, 701, 901) having an annular wall forming a cavity (305, 605, 705), a plurality of inner walls (310) in the cavity that divide the cavity into a plurality of subcavities (306, 606, 706), a floor (307) sealing a bottom end of each of the subcavities, at least one oral care implement (100) disposed within each of the subcavities; a film (320, 620, 720) configured so that a portion of the film can be manipulated to provide access into one of the plurality of subcavities while the other subcavities remain sealed.

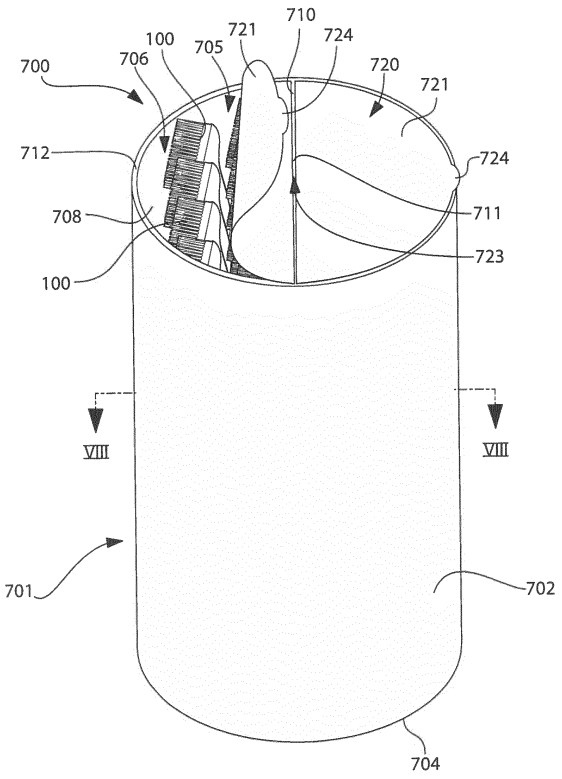

FIG. 7

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to the field of packaging oral care implements, and specifically to a package of oral care implements having a moisture sensitive pre-applied oral care material.

BACKGROUND OF THE INVENTION

[0002] The advantages of good dental hygiene are well known. Often, however, oral care implements cannot be used due to a lack of a water source, such as when a user is driving in a vehicle or on-the-go. Oral care implements that can be used without a water source have recently been developed. For example, oral care implements have been developed that provide an oral care material within the oral care implement itself, such as through an integrated channel, for distribution through the oral care implement to the bristles. Disposable waterless oral care implements that utilize a pre-applied moisture sensitive capsule have also been introduced into the market.

[0003] Oral care implements, such as those described above, must be maintained in a sealed environment prior to use in order to prevent moisture from prematurely degrading and/or releasing the oral care material. As such, these oral care implements must be carefully packaged. Furthermore, users of disposable oral care implements need a place to dispose the oral care implements after use. Disposable oral care implements of the type discussed above are currently packaged in plastic clamshell packages that are individually foil-sealed for protection. If a user uses a disposable oral care implement in a vehicle or another "on-the-go" location, the user must resort to either leaving the used disposable oral care implement loose within the vehicle or holding onto it until a proper waste basket can be located.

[0004] Hence, there is a need for a package that can contain oral care implements in a moisture-free environment prior to use. Furthermore, there is a need for a package that can contain a plurality of oral care implements such that one of the oral care implements can be removed from the package for use while the remainder of the oral care implements remain in a moisture protected environment.

[0005] A need also exists for a package of oral care implements that is designed to resemble a cup that can be positioned within a vehicle cup holder. Furthermore, a need exists for a package of oral care implements that provide a disposal cavity after use.

BRIEF SUMMARY OF THE INVENTION

[0006] The present invention is directed to a package of oral care implements. In one embodiment, the invention can be a package of oral care implements comprising: a tubular body having an annular wall forming a cavity, a plurality of inner walls in the cavity that divide the cavity into a plurality of subcavities, and a floor sealing a bottom end of each of the subcavities; at least one oral care implement disposed within each of the subcavities; a film sealing a top end of each of the subcavities, the film configured so that a portion of the film can be manipulated to provide access into one of the plurality of subcavities while the other subcavities remain sealed.

[0007] In another embodiment, the invention can be a package of oral care implements comprising: a tubular body having an annular wall forming a cavity, a plurality of inner walls in the cavity that divide the cavity into a plurality of subcavities, a floor sealing a bottom end of each of the subcavities, and a roof sealing a top end of each of the subcavities; at least one oral care implement disposed within each of the subcavities; a plurality of slots in the annular wall, wherein each slot forms a passageway into one of the subcavities through which one of the oral care implements can be retrieved; a film sealing the slots, the film configured so that a portion of the film can be manipulated to provide access into one of the plurality of subcavities while the other subcavities remain sealed.

[0008] In yet another embodiment, the invention can be a package of oral care implements comprising: a tubular body having an annular wall forming a cavity, at least one inner wall in the cavity that divides the cavity into a plurality of subcavities, and a floor sealing a bottom end of each of the subcavities; a plurality of oral care implements disposed within each of the subcavities; a re-sealable film sealing a top end of each of the subcavities, the film configured so that a portion of the film can be manipulated to provide access into one of the plurality of subcavities while the other subcavities remain sealed, the film being re-sealable to the tubular body after separation therefrom.

[0009] In a still further embodiment, the invention can be a package of oral care implements comprising: a tubular body having an annular wall and a plurality of subcavities within the annular wall; at least one oral care implement disposed within each of the subcavities; a plurality of slots in the annular wall, wherein each slot forms a passageway into one of the subcavities through which one of the oral care implements can be retrieved; a film sealing the slots, the film configured so that a portion of the film can be manipulated to provide access into one of the plurality of subcavities while the other subcavities remain sealed.

[0010] Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and specific examples, while indicating the preferred embodiment of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The present invention will become more fully understood from the detailed description and the accompanying drawings, wherein:

Figure 1 is a front view of an oral care implement particularly suited for use in a package in accordance with one embodiment of the present invention;
Figure 2 is a side view of the oral care implement of FIG. 1;
Figure 3 is a perspective view of a package of oral care implements in accordance with a first embodiment of the present invention;
Figure 4 is a cross-sectional view taken along the line IV-IV of FIG. 3;
Figure 5 is a cross-sectional view taken along the line V-V of FIG. 4;
Figure 6 is a perspective view of a package of oral care implements in accordance with a second embodiment of the present invention;
Figure 7 is a perspective view of a package of oral care implements in accordance with a third embodiment of the present invention;
Figure 8 is a cross-sectional view taken along the line VIII-VIII of FIG. 7;
Figure 9 is a perspective view of a package of oral care implements having a lid thereon;
Figure 10 is a perspective view of a package of oral care implements in accordance with a fourth embodiment of the present invention; and
Figure 11 is a cross-sectional view taken along the line XI-XI of FIG. 10.

DETAILED DESCRIPTION OF THE INVENTION

[0012] The following description of the preferred embodiment(s) is merely exemplary in nature and is in no way intended to limit the invention, its application, or uses.

[0013] The description of illustrative embodiments according to principles of the present invention is intended to be read in connection with the accompanying drawings, which are to be considered part of the entire written description. In the description of the exemplary embodiments of the invention disclosed herein, any reference to direction or orientation is merely intended for convenience of description and is not intended in any way to limit the scope of the present invention. Relative terms such as "lower," "upper," "horizontal," "vertical," "above," "below," "up," "down," "left," "right," "top," "bottom," "front" and "rear" as well as derivatives thereof (e.g., "horizontally," "downwardly," "upwardly," etc.) should be construed to refer to the orientation as then described or as shown in the drawing under discussion. These relative terms are for convenience of description only and do not require that the apparatus be constructed or operated in a particular orientation unless explicitly indicated as such. Terms such as "attached," "affixed," "connected," "coupled," "interconnected," "secured" and similar refer to a relationship wherein structures are secured or attached to one another either directly or indirectly through intervening structures, as well as both movable or rigid attachments or relationships, unless expressly described otherwise. Moreover, the features and benefits of the invention are described by reference to the exemplary embodiments illustrated herein. Accordingly, the invention expressly should not be limited to such exemplary embodiments, even if indicated as being preferred. The discussion herein describes and illustrates some possible non-limiting combinations of features that may exist alone or in other combinations of features. The scope of the invention is defined by the claims appended hereto.

[0014] Referring to FIGS. 1 and 2, one embodiment of an oral care implement **100** that is particularly suited for use with the present invention is exemplified. As will become apparent from the discussion below, it is preferred that the oral care implement **100** be packaged in a manner that protects the oral care implement **100** against moisture and/or humidity. The oral care implement **100** extends from a proximal end **101** to a distal end **102** and includes a head **112** and a handle **114.** The oral care implement **100** includes a tail portion **103** located at the proximal end **101,** and a head portion **104** located at the distal end **102.** The head **112** may either be a refill head that is removably connected to the handle **114** or a structure that is permanently connected to the handle **114.** The majority of the handle **114** and a portion of the head **112** may be molded from a variety of rigid materials, including without limitation plastics, resins and the like. One suitable rigid material is polypropylene. However, other rigid materials may be used as would be known to persons skilled in the art.

[0015] In the illustrated embodiment, the tail portion **103** of the oral care implement **100,** which is opposite the head portion **104** to which the head **112** is located, comprises an oral care accessory, which in the exemplified embodiment is a toothpick **116.** The toothpick **116** is preferably formed of a resilient and soft thermoplastic elastomer. As with the head **112,** the toothpick **116** may be a refill toothpick that is removably connected to the handle **114** or may be permanently connected to the handle **114.** The toothpick **116** provides a mechanism for spot cleaning between teeth. Forming the toothpick **116** of a soft thermoplastic elastomer provides a more comfortable interproximal cleaning between the teeth. The toothpick **116** could, however, be made of a stiff, rigid material similar to the main portion of the handle **114,** or could simply be a rubber or elastomeric pick adhered or otherwise mounted to the end of the handle **114.** Alternatively, a different accessory, such as a strip of dental floss or a tongue cleaning element, may be attached to the tail portion **103** of the oral care implement **100.** Moreover, in certain embodiments of the invention, the oral care implement **100** may not include an accessory or may include multiple accessories.

[0016] The head **112** comprises a cleaning element block **122.** The cleaning element block **122** comprises a plurality of bristles extending from the head **114.** The bristles of the cleaning element block **122** may be of any desired shape. For example, the bristles could be of cylindrical shape having a uniform diameter throughout their length. Alternatively, the bristles could taper from the root where they extend from the head **122** to their outer cleaning ends. It is understood that the cleaning element block **122** may include other cleaning elements.

[0017] Furthermore, the dimensions of the various components of the oral care implement **100** are preferably small. Thus, for example, each bristle of the cleaning element block **122** may extend outwardly from the outer surface of the head **112** a distance no greater than 10mm and preferably no greater than 8mm and most preferably no greater than 6mm. Where tapered cleaning elements are used, the root diameter should be no greater than 1.5mm, more preferably between 0.5mm and 1mm, and most preferably no greater than 0.3mm. The diameter could then decrease in size with distance from the head **112.** Preferably, the length of the entire oral care implement **100** is no greater than 5 inches, more preferably no greater than 4 inches and most preferably in the range of 2 to 4 inches.

[0018] A central portion of the head **114,** which is surrounded by the cleaning element block 122, comprises a depression or cavity for retaining a rupturable gel capsule or bead **132.** The gel capsule **132** is filled with an oral care material, such as a fluidic solution, for cleaning or otherwise providing health benefits to a user's oral cavity. The oral care material may be toothpowder, toothpaste, tooth cleaning gel, mouthwash or a similar dentifrice or oral hygiene product, or a combination of the same. The gel capsule **132** is moisture-sensitive and should be protected against high humidity environments in order to prevent premature rupture. In other words, the gel capsule **132,** or at least a portion thereof, is susceptible to degradation when subjected to a high humidity atmosphere as it has been discovered that moisture in the air in a high humidity environment can degrade the integrity of the gel capsule **132.** Therefore, it is desirable to package the oral care implement **100** in a manner that protects the gel capsule **132** from humidity and liquid moisture prior to use.

[0019] The gel capsule **132** holds and applies an oral care material onto the tooth cleaning elements **122** of the oral care implement head **112,** and ultimately to a user's teeth and oral care surfaces. As mentioned above, the oral care material may be toothpaste, a gel, a mouthwash, or a similar dentifrice or oral hygiene product, or a combination of the same. Preferably, the gel capsule **132** is a liquid-filled gel capsule having a shell comprising frangible, thin walls that easily rupture or burst when rubbed against the teeth. In a preferred embodiment, the gel capsule **132** degrades when subjected to moisture and, thus, dissolves when mixed with the saliva of a user. As the saliva of a user degrades and dissolves the walls of the gel capsule **132,** the oral care solution held therein is excreted. While the degradation of the gel capsule **132** is a desired characteristic for effectuating end use of the oral care implement **100** by the consumer, the moisture-driven degradation of the gel capsule **132** presents issues with respect to properly preserving the integrity of the gel capsule **132** during product manufacturing, packaging, shipping and display in retail stores.

[0020] The gel capsule **132,** or at least a portion thereof, is susceptible to degradation when subjected not only to direct contact with liquid water but also to prolonged exposure to atmospheres having a high humidity level. It has been discovered that a high humidity environment can degrade the integrity of the gel capsule **132** and prematurely expel the oral care material or cause the oral care material to dry up. Of course, the exact humidity levels and exposure times that will result in the degradation of the gel capsule **132** will be determined on a case-by-case basis, considering such factors as the type of gel capsule **132** being used, the type of oral care material, and the thermal cycling to which the oral care implement **100** is subjected. In view of the foregoing, it is desirable that the gel capsule **132** (and potentially the entire oral care implement **100**) be placed in a package that forms a sealed cavity in which at least the gel capsule **132** of the oral care implement **100** is disposed, thereby protecting the gel capsule **132** from external moisture which can be in the form a high humidity atmosphere or liquid water. In certain embodiments, the sealed cavity may be hermetically sealed.

[0021] In one preferred embodiment of the present invention, the entire structure of the oral care implement **100,** including the head **112,** the handle **114,** and the toothpick **116,** is molded as one integral structure, using a conventional two-component injection molding operation typically used in the manufacture of oral care implements. This enables the oral care implement **100** to be economically and quickly manufactured. Although the oral care implement **100** may be constructed in a wide variety of sizes, shapes and relative dimensions, it is preferred that the oral care implement **100** have a small profile so that it is easily portable and can be discreetly used. In one embodiment, it is preferred that the head **112** be small enough to cover a single tooth at a time and that the handle **114** be substantially thinner than conventional, everyday oral care implement handles.

[0022] Since the oral care implement **100** is intended to be both small and lightweight, it is preferred that the oral care implement **100** weigh no more than 3 grams in certain embodiments. The small size allows the oral care implement **100** to be held completely within the palm of an adult user's hand. The head **112** is preferably sized to correspond to the size of an individual tooth or an individual tooth and the interproximal areas. While the head **112** could be made in any suitable shape, it is preferably of circular or oval shape and has a maximum lateral dimension or diameter of no greater than 13mm, preferably no greater than 12mm and most preferably no greater

than 11mm. Of course, the oral care implement **100** is not limited to any specific dimensions or shapes.

[0023] It is to be understood that the present invention is not limited to the above-described oral care implement **100.** While the inventive package will be described in combination with a plurality of the oral care implements **100,** it is to be understood that other oral care implements can be packaged as discussed below. In certain embodiments of the invention, the package is in no way limited to the structure of the oral care implement **100** unless specifically stated in the claims. In the exemplary embodiment, the oral care implement **100** disposed within the package is one which is disposable, has a pre-applied oral care material, and must be protected against moisture. However, in certain other embodiments, a conventional toothbrush or any other type of oral care implement may be disposed within the package, irrespective of whether it must be protected against moisture and/or contains a pre-applied oral care material. As used herein, pre-applied means that the oral care material is associated with the oral care implement as-packaged for sale.

[0024] Referring to FIGS. 3-5 concurrently, a package **300** containing a plurality of the oral care implements **100** is illustrated. The package **300** is designed to keep moisture out of the subcavities containing the oral care implements **100** so that the pre-applied oral care material, which is in the form of the gel capsule **132,** is protected from degradation due to humidity and/or moisture. Of course, in embodiments where the oral care implements contained within the package **300** do not need to be protected against moisture degradation, the package **300** need not be hermetically sealed.

[0025] The package **300** generally comprises a tubular body **301** having an annular wall **302** that forms a cavity **305.** In the exemplary embodiment, the annular wall **302** has a circular transverse cross-sectional profile. The circular transverse cross-sectional profile shape is beneficial when the package **300** is designed for positioning in a cup holder of a vehicle. In such an embodiment, the package **300** preferably has a diameter D_1 that is between 60-80mm. In certain other embodiments, the package **300** may take on a tapered shape (not shown) such that the diameter D_1 of the package **300** is larger at a top end **303** of the package **300** than at a bottom end **304** of the package **300** or vice versa. Of course, the invention is not so limited and in certain other embodiments, the transverse cross-sectional profile of the annular wall **302** may be almost any shape, including without limitation rectangular, trapezoidal, oval, triangular or otherwise polygonal.

[0026] The package **300** comprises a plurality of inner walls **310** positioned within the cavity 305. The inner walls **310** divide the cavity **305** into a plurality of subcavities **306.** Each of the subcavities **306** comprises a top end **308** and a bottom end **309.** In the exemplary embodiment, the inner walls **310** form a rectilinear gridwork of walls. Of course, the invention is not so limited and the inner walls **310** may take on any other form so long as the inner walls **310** divide the cavity **305** into a plurality of subcavities **306.**

[0027] Referring solely to FIG. 4, the rectilinear gridwork is illustrated in greater detail. The rectilinear gridwork is a preferable embodiment of the inner walls **310** because it maximizes the amount of cavity space that is being used when the annular wall **302** has a circular transverse cross-sectional profile. In the exemplary embodiment in which a circular transverse cross-sectional profile of the annular wall **302** is utilized, some of the subcavities **306** are empty because they are not large enough to contain one of the oral care implements **100** therein. However, as discussed above, the circular transverse cross-sectional profile is preferable when the package **300** is being stored in a vehicle cup holder. In embodiments where the transverse cross-sectional profile of the annular wall **302** is rectangular, the inner walls **310** may be in the form of a Cartesian gridwork in order to maximize the used cavity space. Each of the subcavities **306** may be the same size or different sizes. For example, in embodiments where different types of oral care implements are stored in the package **300,** each of the subcavities **306** may be different sizes to store the different types of oral care implements. Stated simply, the number and size of the subcavities **306** are in no way limiting of the present invention in all embodiments.

[0028] Referring again to FIGS. 3-5 concurrently, the bottom end **304** of the package **300** is enclosed by a floor **307.** The floor **307** is coupled to the annular wall **302** and each of the inner walls **310** so as to seal the bottom end **309** of each of the plurality of subcavities **306.** As will be described in more detail below, in certain embodiments, the floor **307** is a separate component from the annular wall **302** and the inner walls **310** and is attached to the annular wall **302** and the inner walls **310** at a later stage in the manufacturing process. Of course, the invention is not so limited and in certain other embodiments the floor **307** may be formed integrally with the other components of the package **300.**

[0029] In the exemplary embodiment, exactly one oral care implement **100** is disposed within each of the subcavities **306.** Thus, in such an embodiment the transverse cross-sectional dimensions of each of the subcavities are approximately between 6-20mm, and more preferably between 10-15mm. Of course, the size of the subcavities **306** may be larger or smaller than the ranges discussed herein in order to accommodate larger or smaller oral care implements, or to accommodate more than a single one of the oral care implements **100** therein.

[0030] The oral care implements **100** are arranged in the subcavities **306** so that the tail portions **103** of the oral care implements **100** are adjacent the top ends **308** of the subcavities **306** and the head portions **104** of the oral care implements **100** are adjacent the bottom ends **309** of the subcavities **306.** Positioning the oral care implements **100** in the subcavities **306** in this manner provides for easier gripping of the oral care implements **100** by the user for removal from the subcavities **306** as will

be described in more detail below. Of course, the invention is not to be limited by the particular arrangement of the oral care implements **100** within the subcavities **306,** unless specifically recited in the claims

[0031] The package **300** comprises a film **320** that seals the top ends **308** of each of the plurality of subcavities **306.** More specifically, the film **320** is attached to a top edge **312** of the annular wall **302** and a top edge **311** of the inner walls **310.** Thus, a combination of the annular wall **302,** the inner walls **310,** the floor **307** and the film **320** creates an environment within each of the plurality of subcavities **306** such that each subcavity **306** is sealed with respect to the other subcavities **306** and to an environment external to the package **300,** such as the ambient atmosphere. Creating an environment within each of the plurality of subcavities **306** that is sealed from each of the other subcavities **306** assists with maintaining a moisture-free environment within each of the subcavities **306** prior to use of the particular oral care implement **100** within that subcavity **306.** In some embodiments, subcavity **306** is hermetically sealed.

[0032] The film **320** is preferably a thin sheet of material that encloses the entire top end **303** of the package **300,** thereby also enclosing the top ends **308** of each of the subcavities **306.** The film **320** can be, for example without limitation, a laminate, a foil, a wax paper or a plastic sheet. The film **320** is preferably flexible, but may be rigid in certain embodiments. Furthermore, any other materials that can seal the top ends **308** of each of the subcavities **306** as would be known to persons skilled in the art may also be used for the film **320.** The film **320** can be attached to the top edges (or surfaces) of the tubular body **301** by any number of means, including adhesion, thermal bonding, static, friction, or combinations thereof.

[0033] In one embodiment, the film **320** is a substantially transparent material. By creating the film **320** out of a transparent material, a user can easily see through the film **320** into each of the subcavities **306** to determine whether an oral care implement **100** is disposed therein. By allowing a user to see though the film **320** may also allow the user to choose the oral care implement **100** he or she wishes to retrieve in embodiments where different types of oral care implements are stored in the package **300.** However, the invention is not so limited and the film **320** may be translucent or opaque. Furthermore, the film **320** may be colored in any desired fashion including a solid color or a patterned coloring arrangement. In some embodiments, a patterned coloring arrangement consisting of different color film segments **321** may denote to the user the different type of oral care implements that are stored in the package **300.**

[0034] The film **320** is divided into a plurality of film segments **321** that are separable from each other. The film segments **321** are not limited to an embodiment comprising a single film that is subsequently divided into segments but also includes embodiments where completely separate and distinct segments of film **320** are separately applied. In one embodiment, the film segments **321** may be a single film covering the entire top end **303** of the package **300** that is subsequently separated into the film segments **321** by pre-weakening portions **322** on the film **320.** Regardless of how the film segments **321** are created, the film segments **321** collectively form the film **320.** Furthermore, it should be understood that the top end **308** of each one of the subcavities 306 is sealed by a corresponding one of the film segments **321.**

[0035] The film **320** is coupled to the package **300** in a manner so that access can be obtained into a single one of the subcavities **306** while the other subcavities **306** remain sealed from each other and the external environment. In order to gain access into a single one of the subcavities **306,** the film segment **321** that is sealing that particular subcavity **306** must be removed, penetrated or otherwise opened so that the subcavity **306** is no longer covered or sealed by the film segment **321.** In some embodiment, the film segment **321** hermetically seals the subcavity **306.** In the exemplary embodiment, the pre-weakened portions **322** that separate the film **320** into the film segments **321** are portions of the film **320** between adjacent film segments **321.** Specifically, the pre-weakened portions **322** of the film **320** are the portions of the film **320** that overlie and are attached to the top edges **311** of the inner walls **310** between adjacent film segments **321.** In the exemplary embodiment, the film **320** also has a pre-weakened portion **322** overlying the top edge **312** of the annular wall **310.** However, in certain other embodiments, the portion of the film **320** that overlies the top edge **312** of the annular wall **310** is not pre-weakened. The pre-weakened portions **322** can be perforated seams, heat-weakened seams or cut seams located between adjacent film segments **321.**

[0036] As discussed above, in order to gain access into one of the subcavities **306** for removal of the oral care implement **100** disposed therein, the film segment **321** that is sealing that particular subcavity **306** must be manipulated. Manipulating the film segment **321** includes removing or penetrating the film segment **321** or otherwise creating an opening in the film **320** in the area of the film segment **321** that is covering a particular subcavity **306** so that the subcavity **306** is no longer covered by the film segment **321.** Due to the pre-weakened portions **322,** the film segments **321** are easily penetrated or removed. Specifically, when a force **F** is applied to a selected film segment **323** of the plurality of film segments **321** that is enclosing a selected subcavity **316** of the plurality of subcavities **306,** the film **320** breaks along the pre-weakened portions **322** surrounding the selected film segment **323.** As such, the selected film segment **323** becomes separated from the remainder of the film **320** and a passageway is formed from the external environment into the selected subcavity **316** that was sealed by the selected film segment **323.** It should be understood that the force **F** is preferably the force of a user's finger pressing down on the selected film segment **323.** However, the invention is not so limited and the force **F** can be obtained by an object being pressed against the se-

lected film segment **323** or in any other manner as would be understood by persons skilled in the art.

[0037] In certain other embodiments not illustrated, each of the film segments **321** may have a corresponding tab that is able to be gripped by a user. In such an embodiment, when the user desires to gain access into the selected subcavity **316,** the user grips the tab and pulls the selected film segment **323** away from the subcavity in order to provide a passageway into the selected subcavity **316.** Regardless of how the selected film segment **323** is manipulated to create a passageway into the selected subcavity 316, once the selected subcavity **316** is open, the oral care implement **100** disposed in the selected subcavity **316** will be exposed. As such, the user will be able to grip the oral care implement **100** and remove it from the selected subcavity **316** for use. As discussed above, it is preferable that the tail portion **103** of the oral care implement 100 be positioned adjacent the top ends **308** of the subcavities **306.** This is because the tail portion **103** of the oral care implements **100** are smaller than the head portions **104,** which will make it easier for a user to grip the oral care implement **100** and remove it from the subcavity **306.**

[0038] After the user grips the oral care implement **100** and removes it from its corresponding subcavity **306,** the user can use the oral care implement to cleanse his or her oral cavity. The gel capsule **132** will rupture upon use either by dissolving in the user's saliva or being punctured by the user's teeth, and the user's teeth and other oral surfaces will benefit from the contents of the gel capsule **132.** In certain embodiments as discussed above, the oral care implement **100** is intended for one-time use and is therefore disposable. Thus, after use, the user can discard the oral care implement **100** by replacing the oral care implement **100** back into the selected subcavity **316** from which it came. As such, the package **300** can be used as a container for storing the oral care implements **100** prior to use and as a waste basket for discarding of the oral care implements **100** after use. If the package **300** is sized and configured to fit within the cup holder of a vehicle, this will prevent users from leaving the used oral care implements **100** loose within the vehicle.

[0039] In certain embodiments, as will be described in more detail below with reference to FIGS. 7 and 10, the film **320** is also re-sealable. A user may find it unattractive to have the used oral care implements **100** merely positioned uncovered in the subcavities 306. Thus, by re-sealing the film **320,** the used oral care implements **100** can be blocked from view.

[0040] In certain embodiments, the package **300** also comprises a lid (not shown). One embodiment of a lid will be discussed in detail below with reference to FIG. 9. However, the lid may take on any known lid embodiments. Specifically, the lid may be a snap-fit, press-fit, interference fit or other type of lid that covers the top ends **308** of the subcavities **306** above the film **320.** More specifically, the lid will be coupled to the tubular body **301** so that the film **320** is located between a bottom surface of the lid and the tubular body **301.** The lid will prevent the film **320** from being prematurely punctured, opened or removed during manufacturing, packaging, shipping and display at a retail store for sale to an end user. The lid is preferably made of the same materials as the other components of the package **300** as will be discussed below. However, the lid may be formed of any materials so long as the lid protects the film **320** from premature puncture. Any of the embodiments discussed herein, whether illustrated with a lid or not, may be manufactured, shipped, displayed and sold with a lid.

[0041] Referring solely to FIG. 5, an embodiment of the package **300** that comprises a desiccant **380** will be described. In certain embodiments, the desiccant **380** is positioned within the package **300** in order to remove any moisture that may seep into the subcavities **306** of the package **300.** Thus, the package **300** further comprises a transverse plate **360** positioned within each of the subcavities **306** that separates each of the subcavities **306** into an upper chamber **362** and a lower chamber **363.** Conceptually, the package **300** can be considered to include a single transverse plate **360** extending transversely across the entirety of the cavity **305** generally parallel to the floor **307.** The upper chamber **362** extends between the film **320** and a top surface **364** of the transverse plate **360.** Similarly, the lower chamber **363** extends between a bottom surface **365** of the transverse plate **360** and the top surface **312** of the floor **307.** In the exemplified embodiment, the transverse plate **360** is integrally formed as a unitary part with the annular wall **302** and the inner walls **310.** The manufacturing process involved in creating the package **300** with the desiccant **380** will be described in greater detail below.

[0042] In the exemplified embodiment, the transverse plate **360** comprises a plurality of openings **361,** each of which provides a passageway between the upper and lower chambers **362, 363** of the subcavities **306.** In other words, for each subcavity **306,** air within the upper chamber **362** is able to flow downward into the lower chamber **363** through the openings **361** and vice versa. As will be better understood from the discussion below, it is preferable that there is at least one opening **361** in a portion of the transverse plate **360** that is disposed within each of the plurality of subcavities **306.** This will enable air to circulate between the upper and lower chambers **362, 363** in each of the subcavities **306.** In the exemplified embodiment, there are three openings **361** in the transverse plate **360** in each of the subcavities **306.** However, the invention is not so limited and there can be more or less openings **361 in** the transverse plate **360** as desired. Furthermore, it should be understood that in certain other embodiments, the transverse plate **360** can be omitted altogether.

[0043] In the exemplified embodiment, the desiccant **380** is disposed in the lower chamber **363.** The desiccant **380** may be any material that is known to induce or sustain a state of dryness in its local vicinity in a moderately well-sealed container. The desiccant **380** may be, for ex-

ample without limitation, silica gel, calcium sulfate, calcium chloride, montmorillonite clay, molecular sieves, rice, salt or the like. Other desiccants that are now known or later discovered that can sustain a state of dryness within a sealed container while not transmitting any toxins to the oral care implements **100** disposed within the subcavities **306** may be used.

[0044] The oral care implements **100** are disposed in the upper chamber **362.** Thus, the entire package **300** only needs to be large enough in height to contain the oral care implements **100,** which may be as small as 2 to 4 inches, and the desiccant **380,** which may simply be a layer of salt disposed in the lower chamber **363.**

[0045] Due to the openings **361** in the transverse plate **360,** the desiccant **380** will absorb any moisture within either of the upper and lower chambers **362, 363** because the air within the subcavities **306** will freely flow between the upper and lower chambers **362, 363** through the openings **361** in the transverse plate **360.** Thus, the desiccant **380** will remove excess humidity that would otherwise degrade or potentially destroy the oral care implements **100** within the upper chamber **362.**

[0046] It is preferred that the oral care implements **100** be placed in the package **300** at a relative humidity level that is less than 70% at room temperature, preferably less than 60% at room temperature, more preferably less than 50% at room temperature, and most preferably less than 40% at room temperature in order to avoid degradation of the gel capsules **132.** However, in certain embodiments, even if an atmosphere having a higher humidity is initially trapped within the subcavities **306,** the desiccant **380** in the lower chamber **363** will be able to absorb the excess moisture without degrading the gel capsule **132** of the oral care implement **100.** However, the subcavities **306** are air-tight as discussed above in order to prevent further exposure of the gel capsule **132** of the oral care implement **100** to moisture, thereby keeping the gel capsule **132** intact.

[0047] The annular wall **302,** the inner walls **310,** the transverse plate **360** and the floor **307** can be formed of any type of material as would be known to persons skilled in the art. Specifically, the material may be a metal or metal alloy, or a thermoplastic such as for example polypropylene, polyethylene, polystyrene, or polyvinyl chloride. Of course, the invention is not so limited and other materials as would be known to persons skilled in the art can be used.

[0048] The package **300** can be formed in a multi-step process. Specifically, in one embodiment, the annular wall **302,** the inner walls **310** and the transverse plate **160** are formed in a single step injection molding process. After the annular walls **302,** the inner walls **310** and the transverse plate **360** are formed, the lower chamber **363** is filled with the desiccant **380.** Then, after the desiccant **380** is properly positioned, the floor **307,** which is in the form of a plate, is connected to the annular wall **302** and the inner walls **310** so as to enclose the bottom ends of the annular walls **302** and the inner walls **310.**

[0049] The floor **307** can be created in a second injection molding step and then attached or coupled to the annular wall **302** and the inner walls **310** at a later stage of the manufacturing process. The coupling of the floor **307** to the annular wall **302** and the inner walls **310** can be achieved by any suitable technique known in the art, including without limitation thermal welding, a tight-fit assembly, a coupling sleeve, adhesion, fasteners or the like. It should be understood that the various components of the package **300** may be formed by methods other than molding, such as, for example, milling, machine, or other suitable process.

[0050] It should be understood that the desiccant **380** may be omitted altogether in certain embodiments. In such embodiments, the floor **307** may be formed integrally with the annular wall **302** and the inner walls **310.** The embodiments discussed below are not specifically discussed or illustrated as having a desiccant. However, the structure of the package embodiments discussed below may be manufactured as discussed above so that the desiccant **380** can be included in the package for moisture absorption. Furthermore, as discussed above, the package **300** is preferably sized so that it can fit within a vehicle cup holder. Thus, a user will have oral care implements **100** available for use when the user is driving in the vehicle. Of course, the invention is not so limited and the package **300** can take on other shapes and sizes, such as those disclosed above herein.

[0051] Referring to FIG. 6, an alternative embodiment of a package **600** of oral care implements is illustrated. The package **600** is identical to the package **300** except that the configuration of the inner walls and the film are different. The portions of the package **600** that are the same as portions of the package **300** will be described with the same reference numerals, except that the 600-series of numbers will be used. Any portions of the package **600** not specifically described herein have the same structure, configuration and use as the same portions of the package **300.**

[0052] The package **600** comprises a tubular body **601** having an annular wall **602** that forms a cavity **605** with a longitudinal axis **A-A.** The package **600** comprises a plurality of radial walls **610** that divide the cavity **605** into a plurality of subcavities **606.** The radial walls **610** extend radially from the longitudinal axis **A-A** to the annular wall **602** such that each subcavity **606** is sealed from the other subcavities **606.** In the exemplary embodiment, the package **600** has twelve radial walls **610** that divide the cavity **605** into twelve equally sized subcavities **606.** Of course, the invention is not so limited and more or less than twelve radial walls **610** may be provided to divide the cavity **605** into more or less than twelve subcavities **606.** Furthermore, in certain embodiments the radial walls **610** may divide the cavity **605** into a plurality of subcavities **606** of different sizes. As described above with respect to the package **300,** the plurality of subcavities **606** may be of different sizes in order to store different types of oral care implements within a single package **600.** The number

and size of the subcavities 606 are in no way limiting of the present invention.

[0053] Similar to the package **300,** the package **600** has a film **620** enclosing a top end **608** of each of the subcavities **606.** The film **620** is connected to a top edge **611** of each of the radial walls **610** and to a top edge **612** of the annular wall **602.** Furthermore, in the exemplary embodiment, a portion of the film **620** that overlies and is attached to the top edges **611** of the radial walls **610** and the top edge **612** of the annular wall **602** is a pre-weakened portion **622** of the film **620.** Of course, in certain other embodiments, the pre-weakened portion **622** of the film **620** may only be the portion of the film **620** that overlies the top edges **611** of the radial walls **610.** In certain other embodiments, the film **620** may not have any pre-weakened portions **622,** but may instead be a plurality of separate film segments as discussed above with reference to the package **300.** Thus, the package **600 is** the same as the package **300** in all respects except for the configuration of the inner/radial walls **310, 610,** and thus, the size, shape and number of the subcavities **306, 606.** It is preferable that only one oral care implement **100** is disposed within each of the subcavities **606.** However, the subcavities **606** are generally larger than the subcavities **306** and it may be possible to dispose more than one oral care implement **100** within each of the subcavities **606.**

[0054] The film **620** may be penetrated as discussed above by providing a force onto the top surface of one of the films **620** so that the film **620** breaks along the pre-weakened portions **622** surrounding the film **620.** Alternatively, each of the film segments of the film **620** may include a tab for gripping by a user so that the film **620** can be separated from the top edges **611** of the radial walls **610** and the top edge **612** of the annular wall **602.** Thus, the process of removing an oral care implement **100** from one of the subcavities **606** of the package **600** is the same as the process of removing an oral care implement **100** from one of the subcavities **306** of the package **600** discussed above with references to FIG. 3.

[0055] Referring to FIGS. 7 and 8, another embodiment of a package **700** of oral care implements is illustrated. The portions of the package **700** that are the same as portions of the package **300** will be described with the same reference numerals, except that the 700-series of numbers will be used. Any portions of the package **700** not specifically described herein have the same structure, configuration and use as the same portions of the package **300.**

[0056] The package **700** comprises a tubular body **701** having an annular wall **702** that forms a cavity **705.** The package **700** further comprises an inner wall **710** that divides the cavity **705** into two subcavities **706.** Although the package **700** is illustrated having only a single inner wall **710,** the invention is not so limited. In other embodiments, the package **700** may have two inner walls that are perpendicular to each other, or more than two inner walls. The number of inner walls included with the package **700** is dependent upon the desired number of subcavities **706.** A bottom end **704** of the package **700** is enclosed by a floor (not shown), which seals each of the subcavities **706** as discussed above with reference to the package **300.**

[0057] The package **700** has a plurality of the oral care implements **100** disposed within each of the subcavities **706.** For example, in the illustrated embodiment, ten oral care implements **100** are disposed within each of the subcavities **706.** Of course, the invention is not to be limited by the number of oral care implements **100** disposed within each of the subcavities **706.**

[0058] Each of the subcavities **706** has a top end **708** that is sealed by a re-sealable film **720.** The re-sealable film **720** is attached to a top edge **711** of the inner wall **710** and a top edge **712** of the annular wall **702.** More specifically, the re-sealable film **720** comprises two separate film segments **721** that are attached to the top edge **711** of the inner wall **710** and the top edge **712** of the annular wall **702** with a gap or space **723** between each of the film segments **721** at the top edge **711** of the inner wall **710.** Thus, each one of the film segments **721** encloses and seals one of the subcavities **706.** Of course, the invention is not so limited and in certain other embodiments the film **720** may be a single film sheet that encloses both of the subcavities **706** and the film **720** may be a pre-weakened area as discussed above.

[0059] The film **720** is attached to the package **700** so that a portion of the film **720** can be manipulated to provide access into a single one of the subcavities **706,** while the other subcavities **706** remain sealed. More specifically, one of the film segments **721** can be separated from the package **700** to expose/open one of the subcavities **706** while the other one of the film segments **721** remains attached to the package **700** so as to seal the other one of the subcavities **706.** Of course, in embodiments where there are more than two subcavities **706,** any one of the subcavities **706** can be opened while the other of the subcavities **706** remain sealed.

[0060] Each of the film segments **721** comprises a pull tab **724.** The pull tabs **724** enable a user to easily grip the film segments **721** to manipulate the film segments **721** and open the subcavities **706,** thereby exposing the oral care implements **100** within the subcavities **706** to the external environment. The pull tabs **724** are sized and shaped to be easily grasped by a user's fingers and thumb. The pull tabs **724** also facilitate re-sealing of the film segments **721** as will be discussed below. Although the pull tabs **724** are illustrated as being located on the portion of the film segments **721** adjacent the top edge **712** of the annular wall **702,** in other embodiments the pull tabs **724** can be located on the portion of the film segments **721** adjacent the top edge **711** of the inner wall **710.**

[0061] The top edge **712** of the annular wall **702** and a portion of the top edge **711** of the inner wall **710** are covered or layered with an adhesive. Specifically, the top edge **711** of the inner wall **710** is covered with an adhesive

while leaving the gap **723** between adjacent film segments **721** free of the adhesive. Additionally or alternatively, the adhesive may be applied along a perimeter of each of the film segments **721.** The adhesive is not applied to the pull tab **724** so that the pull tab **724** is prevented from adhering to the top edge **712** of the annular wall **702.** Thus, a user will be more easily able to grasp the pull tab **724** and pull the film segments **721** of the film **720** away from the package **700** to open the subcavities **706.** Furthermore, by giving a consumer a specific portion of the film segments **721** to pull, the consumer is not drawn to touching the adhesive portion of the film segments **721.** Touching the adhesive portion of the film segments **721** may cause the adhesive layer to lose its adhesiveness and not provide a proper reseal of the top ends **708** of the subcavities **706.** Any type of adhesive that is now known or later discovered for use with resealable films as described above may be used as the adhesive as would be known to persons skilled in the art.

[0062] In use, a user will grasp the pull tab **724** of one of the film segments **721** and pull the film segment **721** away from the package **700** to open the subcavity **706.** The bonding strength of the adhesive is strong enough to maintain a hermetic seal when the film **720** is positioned on the package **700,** but weak enough so that the seal can be broken to open the subcavities **706** without tearing or otherwise destroying the film **720.** Once the subcavity **706** is opened, a user will remove one of the oral care implements **100** from the subcavity for use **706.** The user can replace the oral care implement **100** back into the subcavity **706** for disposal after use. Then, the user will re-seal the film segment **721** to enclose and seal the subcavity **706** by reattaching the film segment **721** to the top edge **712** of the annular wall **702.** The user can apply pressure to the perimeter of the film segment **721** in order to ensure that a sufficient seal is achieved between the film segment **721** and the top edge **712** of the annular wall **702.**

[0063] When the film segment **721** is pulled back from the package **700,** the oral care implements 100 disposed within the subcavity **706** that was covered by the film segment **721** will be exposed to the external environment and therefore also to any moisture contained therein. As noted above, it is desirable to prevent the oral care implements **100** from exposure to moisture prior to use in order to prevent premature rupture of the gel capsules **132.** However, it is most preferable that the oral care implements **100** be sealed during the packaging, shipping and display stages until sale to the end user. In some embodiments, the oral care implements **100** are sealed. Once the end user purchases the package **700,** limited exposure to moisture will not damage the oral care implements **100** or the gel capsules **132** disposed thereon. Thus, opening the package **700** and exposing a plurality of the oral care implements **100** to the external environment temporarily is not harmful to the gel capsules **132** of the oral care implements **100.** However, it is preferable that the film segments **721** be properly re-sealed onto the package **700** in order to prevent excessive exposure of the unused oral care implements **100** to moisture.

[0064] Furthermore, creating the package **700** so that a desiccant can be disposed therein can further protect the gel capsules **132** of the oral care implements **100** against moisture damage. As discussed above, the oral care implements **100** in the package **700** will be subjected to the external environment prior to use because a plurality of the oral care implements **100** are positioned within a single subcavity **706.** As such, in certain embodiments, the package **700** may have a desiccant disposed therein as discussed above with regard to FIG. 5 in order to absorb moisture that may potentially enter into the subcavities **706** during removal of a single one of the oral care implements **100** from the subcavity **706.**

[0065] As discussed above with regard to the package **300,** it may be beneficial to provide a lid for the packages described herein in order to protect the films from damage or rupture. Referring to FIG. 9, one embodiment of a package **900** having a lid **910** is illustrated. The package **900** may be any of the packages **300, 600, 700** discussed herein. The package **900** is therefore generically illustrated as comprising a tubular body **901** having an annular wall **902** that forms a cavity (not shown). The lid **910** may be any type of lid that is known to persons skilled in the art. The lid **910** does not need to hermetically seal the top end of the cavity because the film achieves the hermetic seal as discussed above. In the exemplary embodiment, the lid **910** comprises a top plate **911** and an annular skirt **912.** The lid **910** may be coupled to the tubular body **910** in any manner as would be known to persons skilled in the art. Because the package **900** is already sealed by the film (not shown), the lid **910** helps to protect the film from rupture prior to the time a user desires to use an oral care implement disposed in the cavity. In certain other embodiments, the lid **910** may provide an additional hermetic seal by including a gasket to prevent moisture in the external environment from penetrating into the cavity. The lid **910** may be attachable to the tubular body **901** by a press-fit, snap-fit, interference fit, friction fit or any other type of attachment/connection as would be known to persons skilled in the art.

[0066] Referring to FIGS. 10 and 11, another embodiment of a package **1000** of oral care implements is illustrated. The package **1000** comprises a tubular body **1001** having an annular wall **1002** that forms a cavity **1005.** The package **1000** also comprises a plurality of inner walls 1010 in the cavity **1005** that divide the cavity **1005** into a plurality of subcavities **1006.** In the exemplified embodiment, the inner walls **1010** extend radially from a longitudinal axis **B-B** of the cavity **1005.** More specifically, the inner walls **1010** extend from the longitudinal axis **B-B** to an inner surface **1013** of the annular wall **1002.**

[0067] The annular wall **1002** comprises a plurality of slots **1030.** Each of the slots **1030** forms a passageway into one of the subcavities **1006** from an area external to the subcavities **1006.** In other words, the annular wall **1002** is made up of a plurality of wall segments **1032** that

are separated by a gap formed by the slots **1030.** Each of the wall segments **1032** is connected to one of the inner walls **1010** to form a T-shape.

[0068] The package **1000** comprises a roof **1003** that seals a top end **1008** of each of the subcavities **1006** and a floor **1007** that seals a bottom end **1009** of each of the subcavities **1006.** The floor **1007** and roof **1003** may be integrally formed with the annular wall **1002** and inner walls **1010** or the floor **1007** and the roof **1003** may be separately formed and later connected to the annular wall **1002** and inner walls **1010** as has been discussed herein above. In the exemplified embodiment, the floor **1007** and the roof **1003** are plates that enclose the bottom and top ends **1009, 1008** of the package **1000,** respectively. However, the floor **1007** and the roof 1003 of the package may take on other structural forms as would be known to persons skilled in the art so long as the floor **1007** seals the bottom ends **1009** of the subcavities **1006** and the roof 1003 seals the top ends **1008** of the subcavities **1006.**

[0069] At least one oral care implement **100** is disposed within each of the plurality of subcavities **1006.** In the illustrated embodiment, exactly one oral care implement **100** is disposed in each of the twelve illustrated subcavities **1006.** However, in certain other embodiments, more than one oral care implement **100** may be disposed in each of the subcavities **1006.** Furthermore, the package **1000** may comprise more or less than twelve subcavities **1006** in alternative embodiments. The oral care implements **100** may be retrieved from the package **1000** through the passageway that is formed by the slots **1030** in the annular wall **1002.**

[0070] In the exemplified embodiment, each of the subcavities **1006** is an open space between the annular wall **1002** and adjacent inner walls **1010.** However, in certain other embodiments, the subcavities **1006** may simply be depressions in the annular wall **1002** that are sized and shaped to snugly fit a single oral care implement **100** therein. In other words, the annular wall **1002** may have a depression in an outer surface **1014** that is sized and shaped to correspond with the size and shape of the oral care implements **100.** In such an embodiment, the oral care implements **100** can fit within the depression and be covered by a film as will be described in more detail below. Furthermore, in such an embodiment, the inner walls **1010** may be omitted altogether because they will not be necessary to create the plurality of subcavities 1006. Rather, in such an embodiment, the plurality of subcavities **1006** are the depressions formed in the outer surface **1014** of the annular wall **1002.**

[0071] Each of the slots **1030** is sealed by a film **1020.** As such, each of the subcavities **1006** is sealed from the external environment. Furthermore, the combination of the annular wall **1002,** the inner walls **1010,** the roof **1003** and the floor **1007** seal each of the subcavities **1006** from the other subcavities **1006.** Thus, each subcavity **1006** is its own, isolated and separate sealed compartment. The film **1020** is configured as discussed below so that a portion of the film **1020** can be manipulated to provide access into a single one of the subcavities **1006** while the other subcavities **1006** remain sealed. Specifically, the film comprises a plurality of film segments **1021** that are separate or separable from one another. In the exemplary embodiment, each of the plurality of film segments **1021** is separate and distinct from the other of the film segments **1021.** Furthermore, each of the film segments **1021** is separated from adjacent film segments **1021** by a gap **1023.** In certain other embodiments, the film segments **1021** may be connected to each other to collectively form the film **1020.** In such an embodiment, the film **1020** comprises pre-weakened portions between adjacent film segments **1021,** the pre-weakened portions overlying and attached to the outer surface **1014** of the annular wall **1002** to enable the film segments **1021** to be easily separated from each other so that access to one subcavity **1006** at a time can be achieved.

[0072] The film **1020** is attached to the outer surface ***1014** of the annular wall **1002.** More specifically, each of the film segments **1021** is attached to the roof **1003,** the floor **1007** and two adjacent wall segments **1032** of the annular wall **1002.** Furthermore, each of the film segments **1021** comprises a tab **1024.** The tab **1024** extends from the film segments **1021** beyond the roof **1003** of the package **1000** for easy gripping by a user. Of course, the invention is not so limited and the tab **1024** could be otherwise located on the film segments **1021.** Furthermore, the film segments **1021** could be attached to the package **1000** in other ways that would be known to persons skilled in the art as long as each one of the film segments **1021** seals one of the subcavities **1006.**

[0073] An adhesive is applied to either a rear surface **1025** of the film segments **1021** around the perimeter of the film segments **1021** or the outer surface **1014** of the annular wall **1002,** or both. Thus, the film segments **1021 are** removably attached to the outer surface **1014** of the annular wall **1002.** A user can grasp the tab **1024** and pull down on the film segments **1021** in order to remove the film segments **1021** from the annular wall **1002** and to expose the subcavities **1006.** Furthermore, in certain embodiments the film segments **1021** are re-sealable such that the film segments **1021** can be re-attached to the annular wall **1002** after opening in order to enclose and seal the subcavity **1006.**

[0074] The various components of the different embodiments of the packages discussed above may be used with any of the package embodiments. For example, although not all embodiments are illustrated and described as having a desiccant, any of the embodiments may comprise a desiccant. Furthermore, although not all embodiments are illustrated and described as having a lid, any of the embodiments may comprise a lid. Thus, mixing and matching the various components of the different embodiments described herein is contemplated within the scope of the present invention.

[0075] As used throughout, ranges are used as shorthand for describing each and every value that is within

the range. Any value within the range can be selected as the terminus of the range. In addition, all references cited herein are hereby incorporated by referenced in their entireties. In the event of a conflict in a definition in the present disclosure and that of a cited reference, the present disclosure controls.

[0076] While the foregoing description and drawings represent the exemplary embodiments of the present invention, it will be understood that various additions, modifications and substitutions may be made therein without departing from the spirit and scope of the present invention as defined in the accompanying claims. In particular, it will be clear to those skilled in the art that the present invention may be embodied in other specific forms, structures, arrangements, proportions, sizes, and with other elements, materials, and components, without departing from the spirit or essential characteristics thereof. One skilled in the art will appreciate that the invention may be used with many modifications of structure, arrangement, proportions, sizes, materials, and components and otherwise, used in the practice of the invention, which are particularly adapted to specific environments and operative requirements without departing from the principles of the present invention. The presently disclosed embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being defined by the appended claims, and not limited to the foregoing description or embodiments.

Claims

1. A package of oral care implements comprising:

a tubular body having an annular wall forming a cavity, a plurality of inner walls in the cavity that divides the cavity into a plurality of subcavities, and a floor sealing a bottom end of each of the subcavities;
at least one oral care implement disposed within each of the subcavities;
a film sealing a top end of each of the subcavities, the film configured so that a portion of the film can be manipulated to provide access into one of the plurality of subcavities while the other subcavities remain sealed.

2. The package according to claim 1 wherein the film hermetically seals the top end of each of the subcavities.

3. The package according to any one of claims 1 to 2 wherein the film is substantially transparent.

4. The package according to any one of claims 1 to 3 wherein the oral care implements comprise a head portion and a tail portion, the oral care implements arranged in the subcavities so that the tail portions of the oral care implements are adjacent the top ends of the subcavities.

5. The package according to any one of claims 1 to 4 wherein the film comprises a plurality of film segments that are separable from one another, wherein the top end of each of the subcavities is sealed by one of the film segments.

6. The package according to claim 5 wherein each of the film segments comprises a tab for gripping by a user.

7. The package according to claim 5 wherein the film comprises pre-weakened portions between adjacent film segments, the pre-weakened portions overlying and attached to top edges of the inner walls, optionally wherein the pre-weakened portions are perforated seams, heat-weakened seams or cut seams.

8. The package according to claim 7 wherein when a force is applied to a selected film segment, the film breaks along the pre-weakened portions surrounding the selected film segment.

9. The package according to any one of claims 7 to 8 wherein the inner walls extend radially from a longitudinal axis of the cavity.

10. The package according to any one of claims 7 to 8 wherein the inner walls form a rectilinear gridwork.

11. The package according to any one of claims 1 to 10 wherein the subcavities are sealed with respect to one another and an external environment.

12. The package according to any one of claims 1 to 11 further comprising a lid coupled to the tubular body, the film located between a bottom surface of the lid and the tubular body.

13. The package according to any one of claims 1 to 12 wherein the oral care implement is a toothbrush comprising a pre-applied moisture-sensitive dispenser.

14. The package according to any one of claims 1 to 13 wherein the film is a re-sealable film sealing a top end of each of the subcavities, the film being re-sealable to the tubular body after separation therefrom.

15. The package according to claim 14 wherein the tubular body comprises exactly two subcavities, optionally wherein the re-sealable film comprises a plurality of re-sealable film segments, wherein the top end of each of two adjacent subcavities is sealed by one of the plurality of re-sealable film segments.

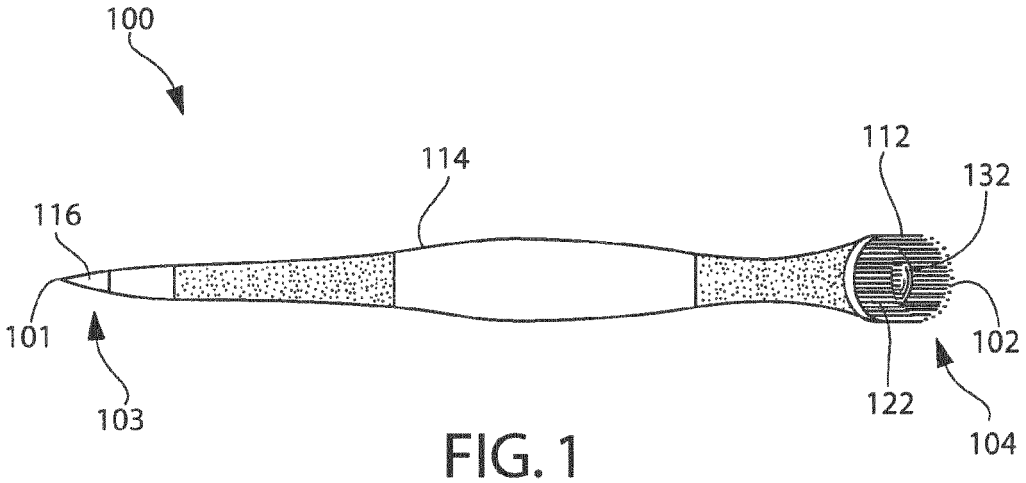
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FIG. 1

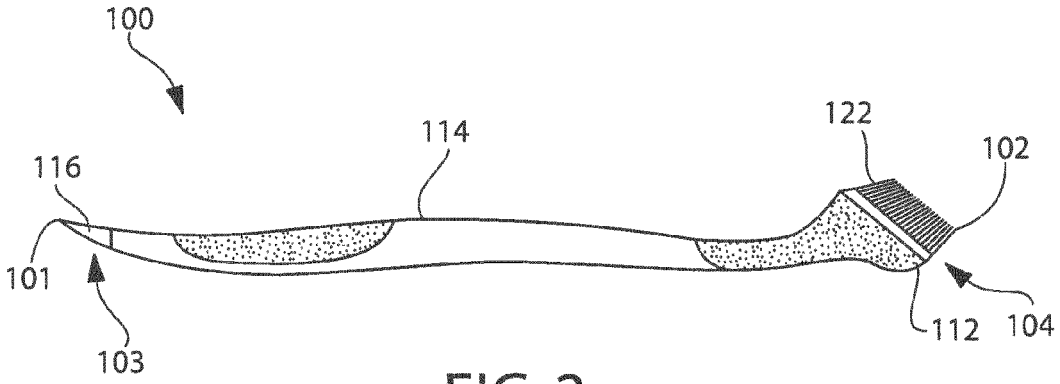
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FIG. 2

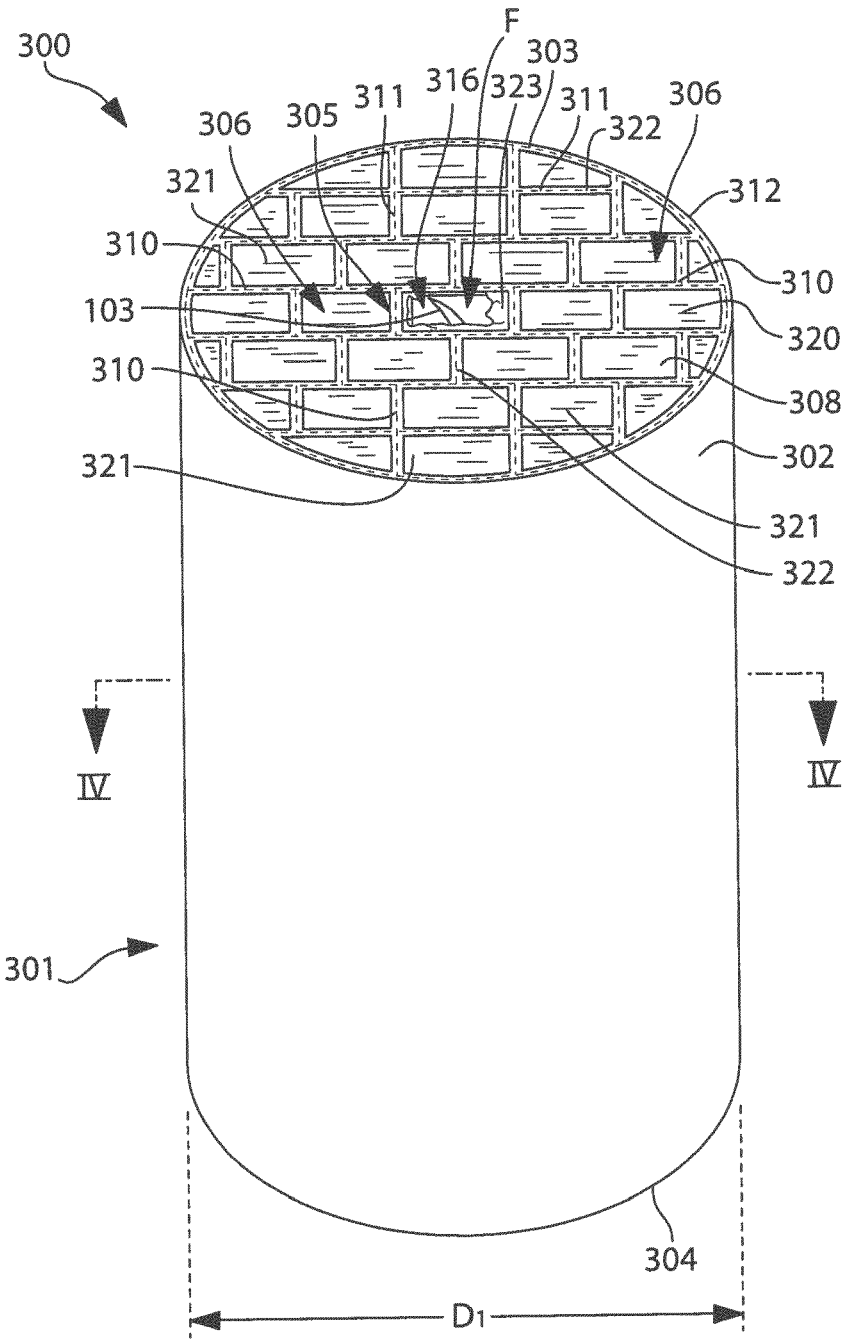
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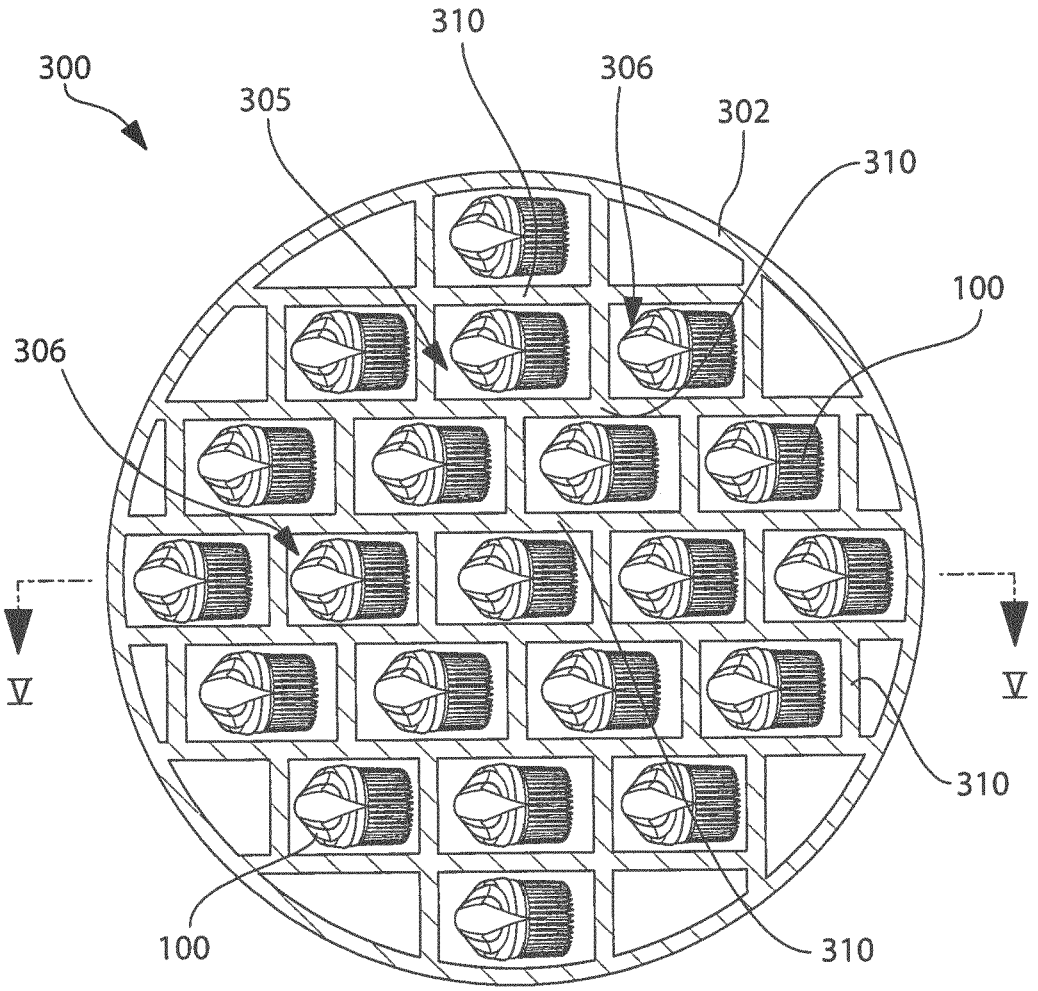
FIG. 3



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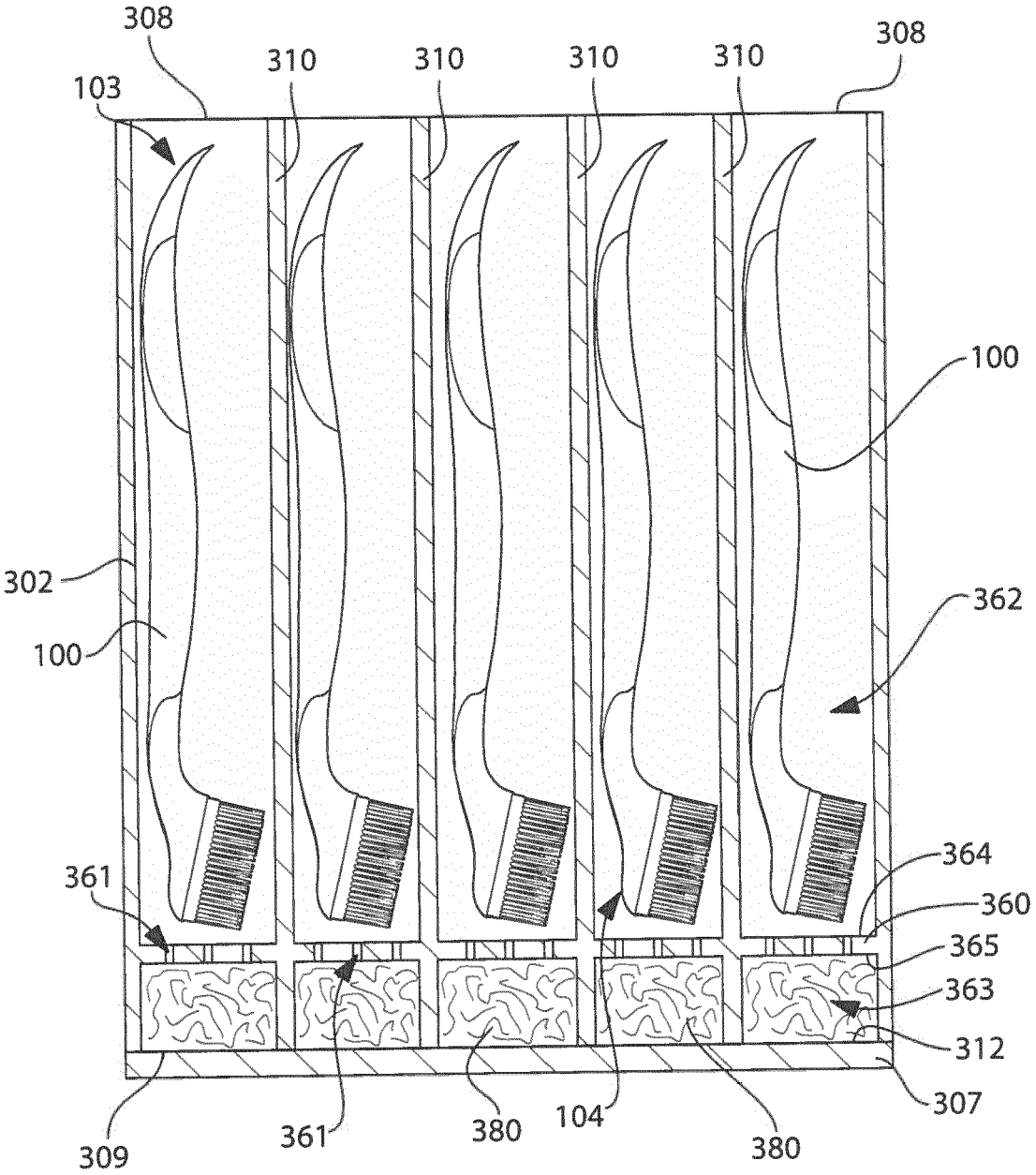
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FIG. 5

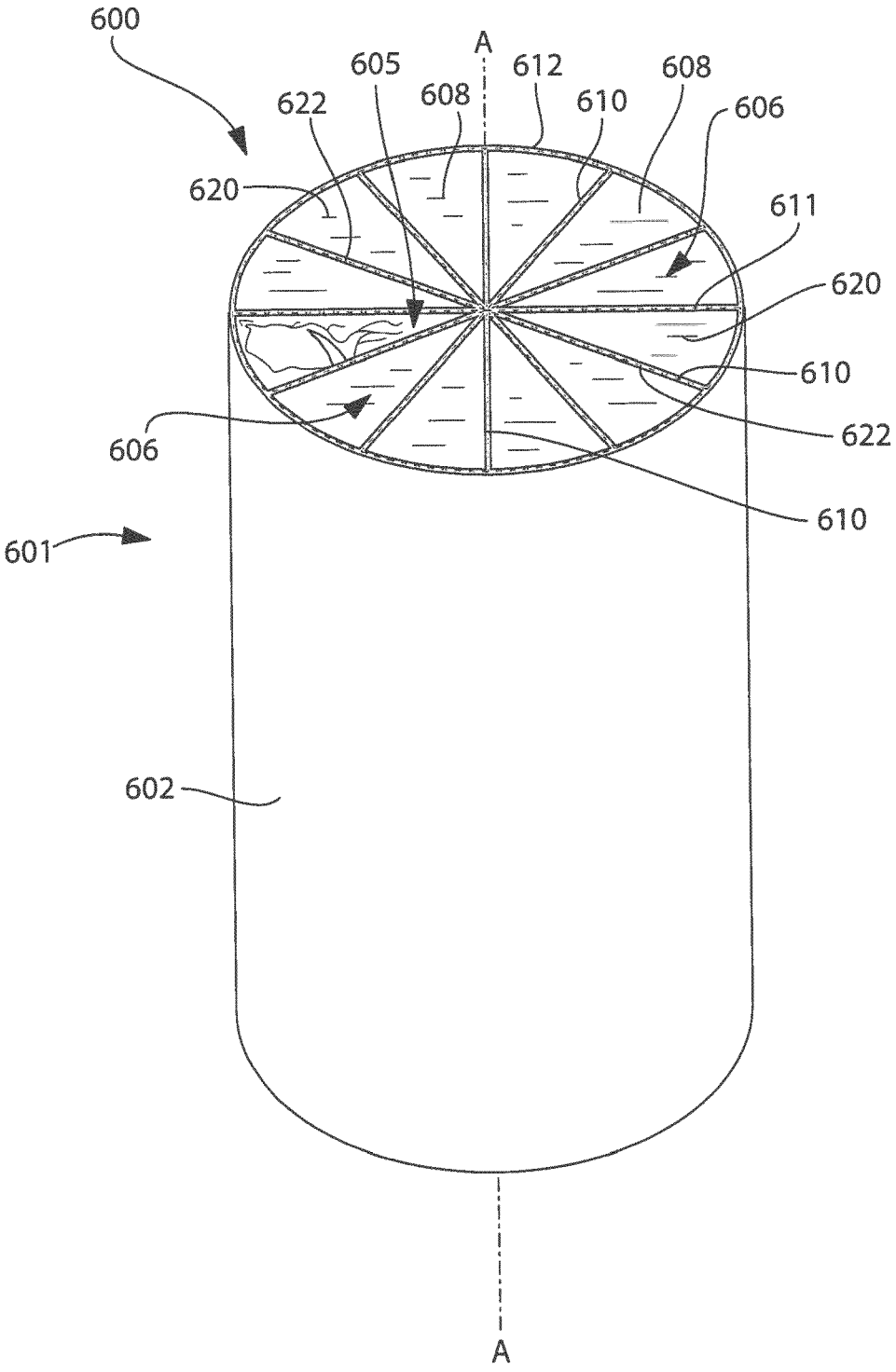
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FIG. 6

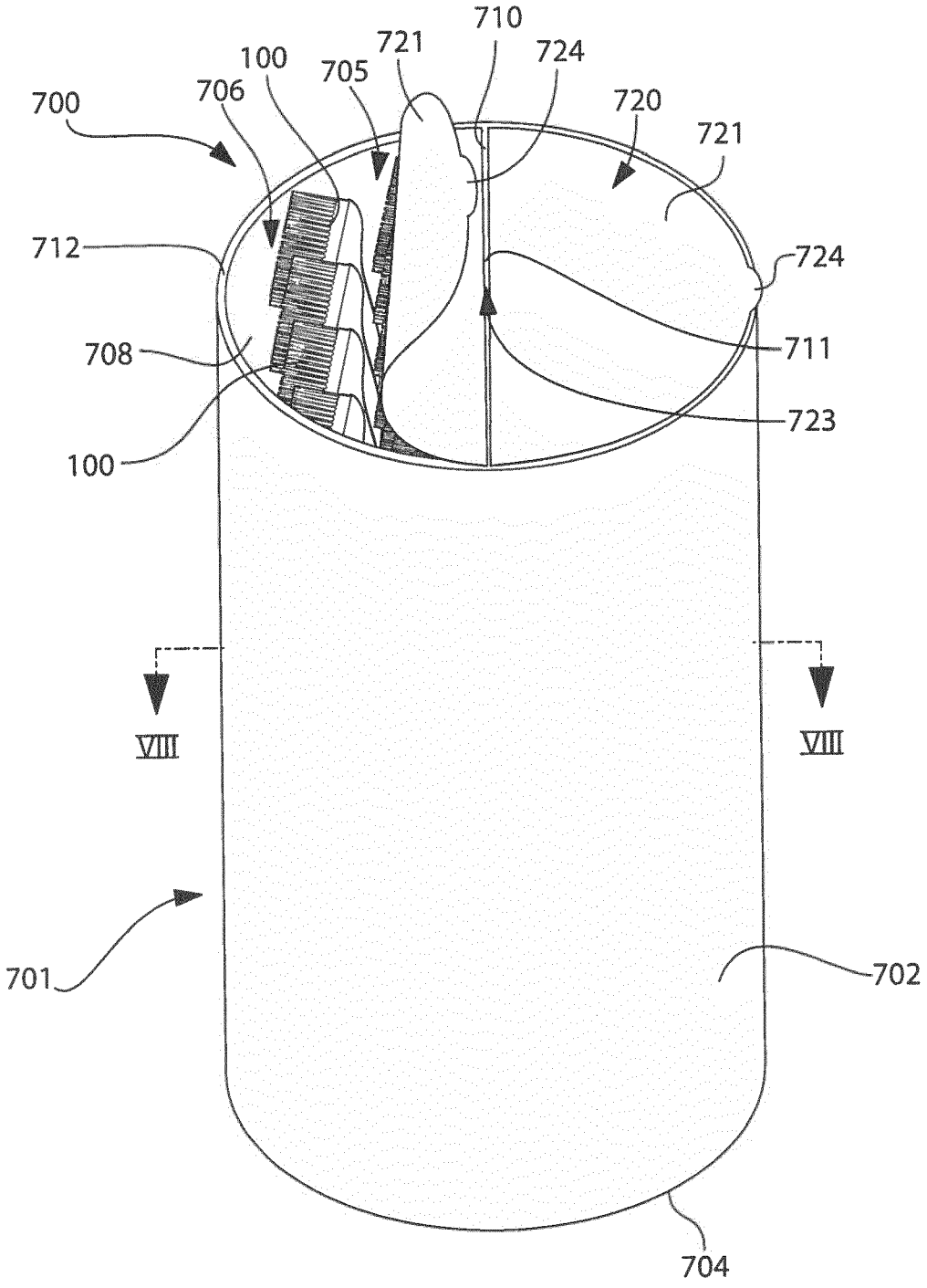
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FIG. 7

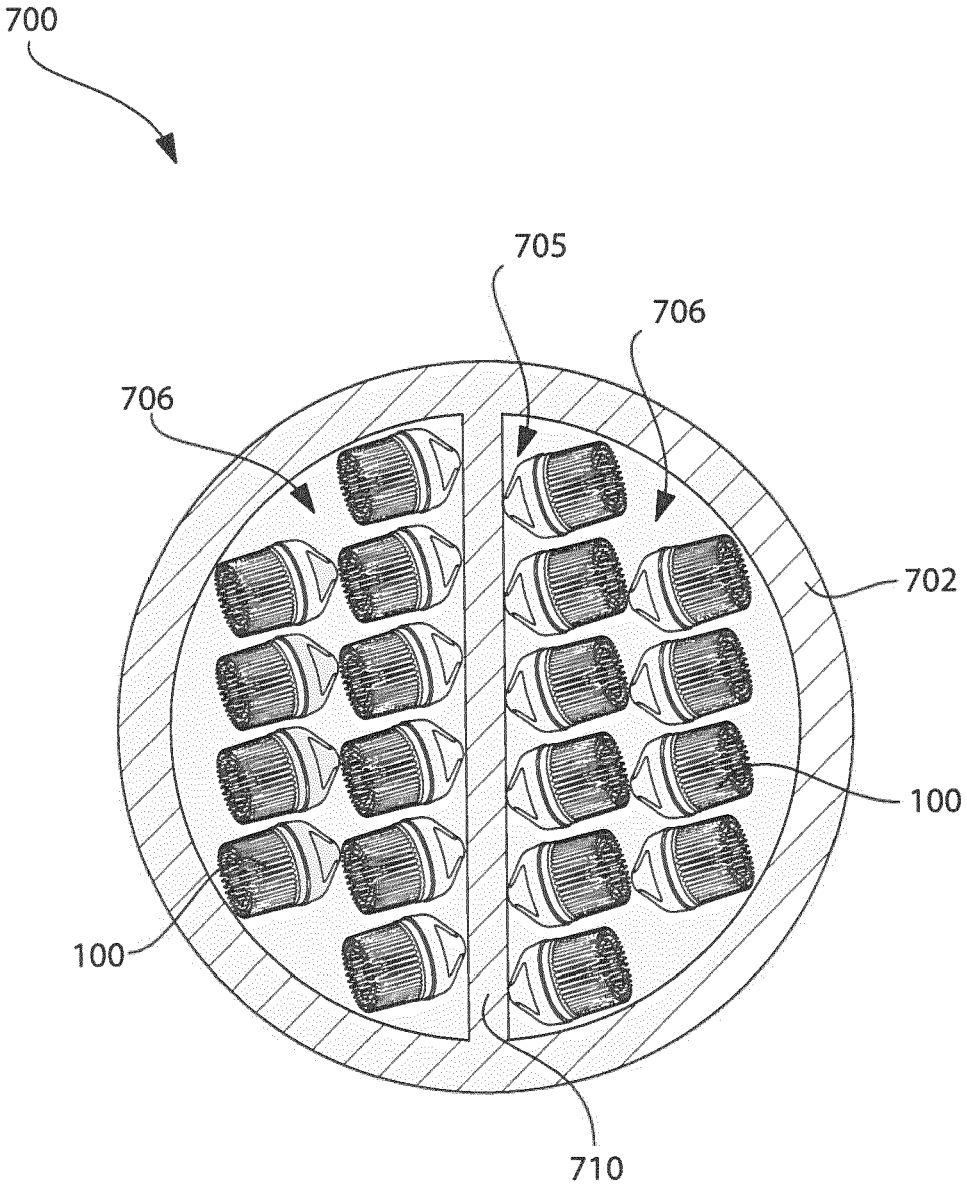

FIG. 8

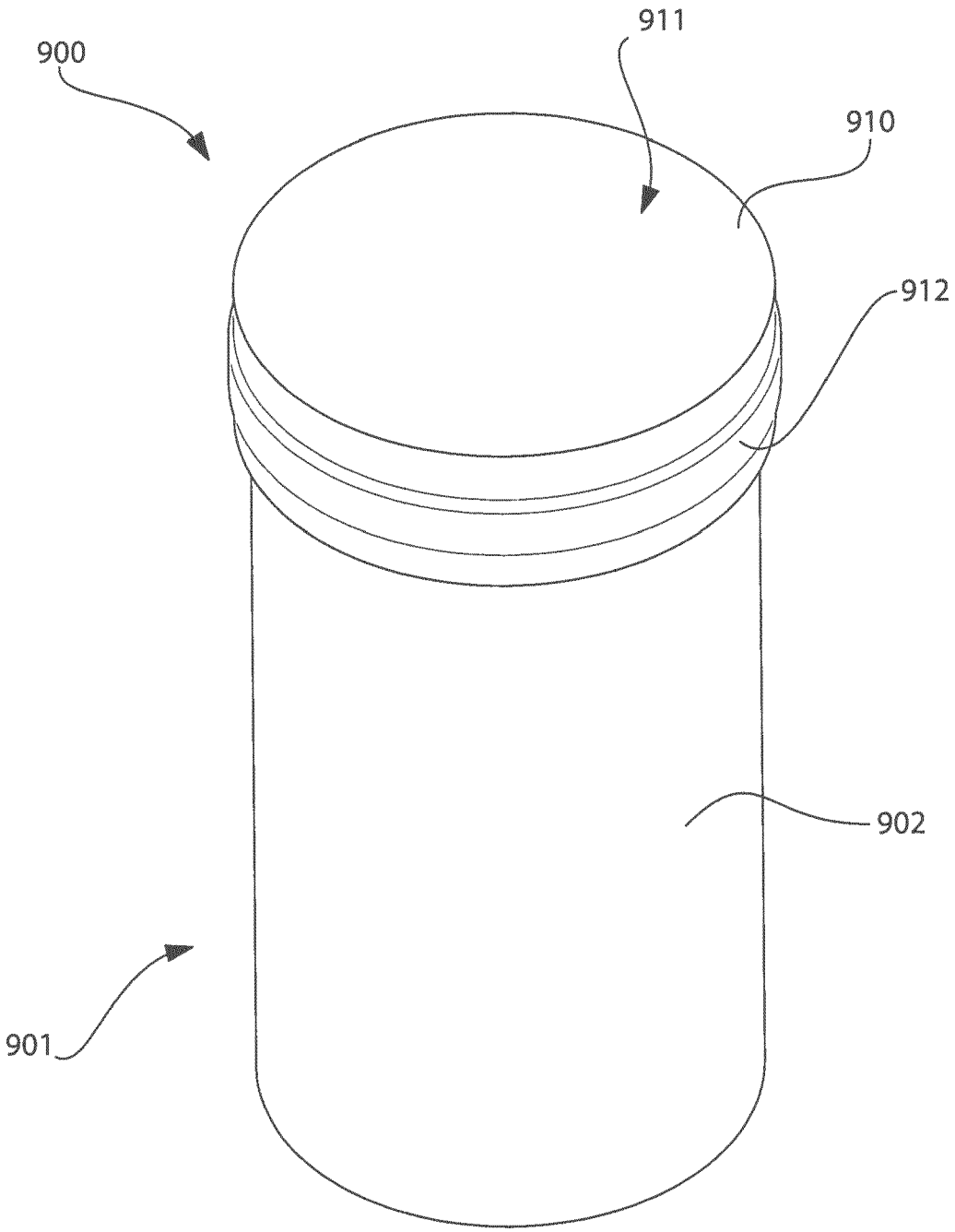

FIG. 9

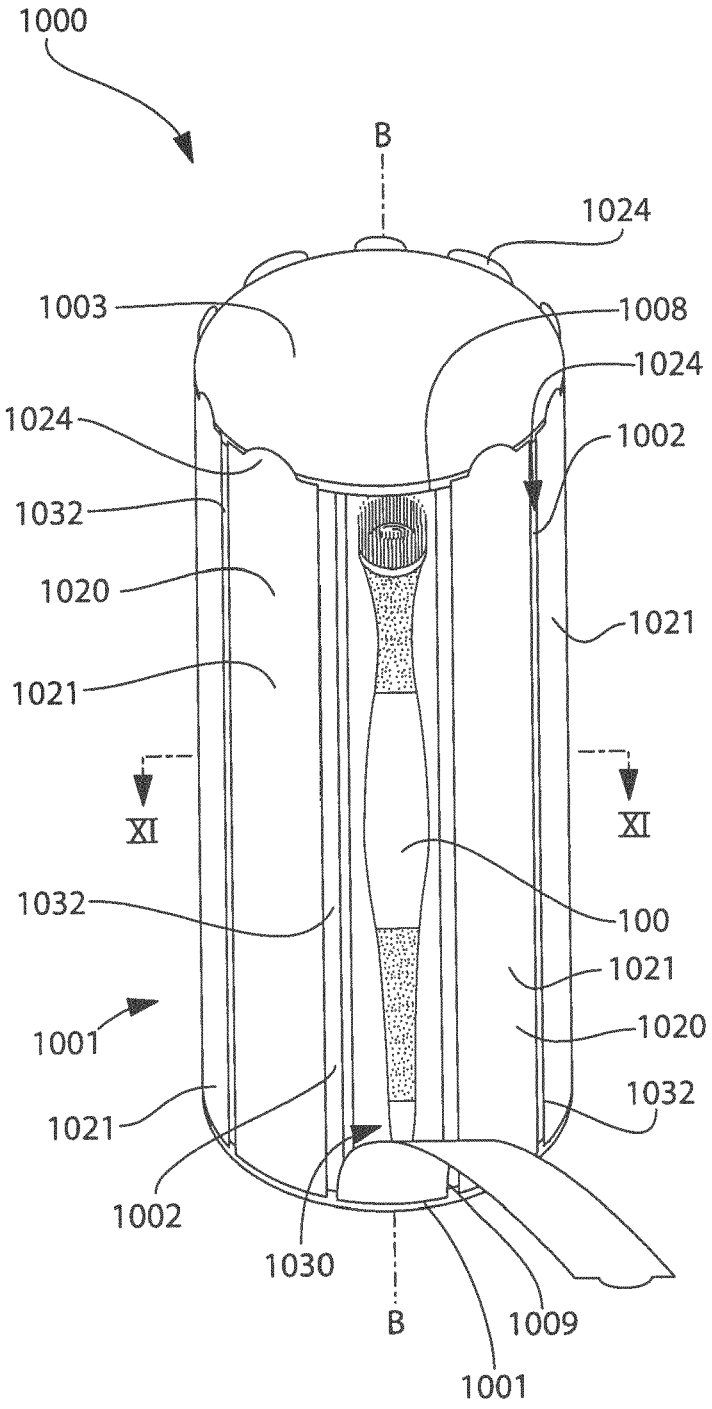
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FIG. 10

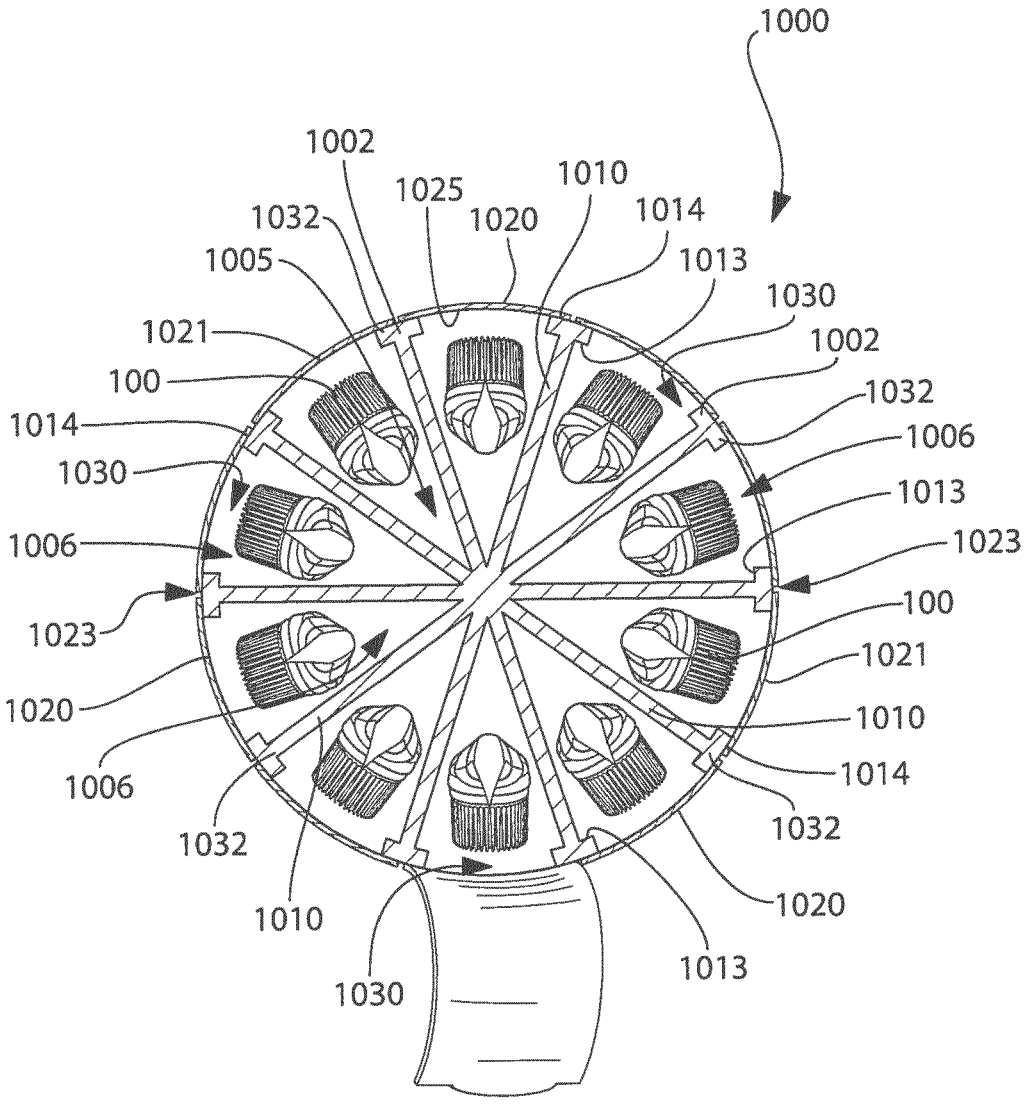
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FIG. 11

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EUROPEAN SEARCH REPORT

Application Number
EP 15 15 1543

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B65D
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A46B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	13 May 2015	Duc, Emmanuel

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13-05-2015

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